

Distance and Remote Healing a New development: Telemedicine and COVID-19 -Review

Mallikarjunagouda B. Patil

Bharat Ratna Prof. CNR Rao Research Centre, Basaveshwar Science College,
Bagalkot-587101, Karnataka, INDIA

REVIEW ARTICLE

ABSTRACT: Pandemic kind of extreme conditions, admit of patients in hospital emergency ward becomes unsustainable. Across the globe, the healthcare professionals and governments are showing much interest on technology as a critical ally to combat battle with the COVID-19 outbreak. The present article will focus on the optimistic impact of telemedicine for helping service stipulation, from enabling virtual triage to mitigating the negative psychological effects of social isolation. This article focuses on the challenges and opportunities to telemedicine practices.

KEYWORDS: COVID-19, Pandemic, Telemedicine

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1. INTRODUCTION

Bubonic plague (1347–1351), yellow fever (1800s), the Spanish flu (1918–1919), and now COVID-19 have been considered as pandemic. A pandemic stands for an infectious sickness where one can see major and ongoing human-to-human spread in multiple countries across the globe at the same time. Unlike historical pandemics, healthcare management of the COVID-19 pandemic can pay attention on new technologies for self-isolation, quarantine, prevention, initial symptoms triage and at the end of the day, the return to social interaction. The article focuses on the challenges and opportunities of healing at a distance using telemedicine practices for e-healthcare.

Pandemics aggravate panic, fright and it makes people to rush across public healthcare systems make service waves that end up additional problems for the service ecosystem, these include (i) overcrowded emergency departments in hospitals and (ii) struggle to handle high demand and constrained capacity. This creates a vicious cycle, as according to [1], the excess admit of the patients in emergency departments will makes huge contaminations in populations. In such scenario the face-to-face communications certainly play a major role in the health care workers, physician-patient relationship [2], this is indefensible in maintaining pandemics. This creates a drift for healthcare professionals and administration: in what way healthcare will be providing by non-physical communications with patients. To overcome this type of problems, in the present article author tried to find the answer for the wider healthcare system and health

professionals can take up telemedicine in the collective war against COVID-19 [3].

Need of Telemedicine

The extensive work was carried out in medical research proven that the similar outcomes in traditional consultancy and remote consultancy. The recent research shows that that in particular pathologies like chronic diseases can be more effectively monitored by telemedicine. Monitoring by Home decreases the hospital stays and admissions reduces inconveniences that suffered by patients. The main advantage of telemedicine is that which drastically decreases the cost of conventional medical consultancy, no waiting for the diseased, enhanced medical services and offers fruitful solution to the diseased. Minor and pilot scale research attracts funds scaffold of digital agenda for Europe and US government and other countries as well. [4]

Telemedicine: healing at a distance

A tool that makes healthcare more accessible, cost-effective and that increases patient engagement– is telemedicine. Since making its debut in the late 1950's, advances in telemedicine have contributed to senior citizens having the choice to age in place. In addition, the patients that reside in rural areas that previously had difficulties accessing a physician, can now reach them virtually. Physicians and patients can share information in real time from one computer screen to another. They can even see and capture readings from

*Corresponding Author: mallupatil04@gmail.com

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Mallikarjunagouda B. Patil

medical devices sitting at remote location. Using telemedicine software, patients can see a doctor for diagnosis and treatment without having to stay for an appointment. Patients can consult their physician at their comfort time sitting at home.

The advance technologies can be efficiently used in extreme conditions such as natural calamities like flood, draft or forest fire and pandemic situations [5-6]. The technology such as telemedicine will help in healthcare to enable 'healing at a distance' [7]. The e-healthcare ecosystem especially telemedicine will provides a accurate measure to sustain and endorse clinical care at long-distance, education and healthcare, from primary response to healing with cost effective and widespread treatment. The Governments across the globe, like Australia, United States of America and United Kingdom are paying much attention in telemedicine to deal with COVID-19, with fixed goal of declining the rate of patients admitting in the emergency care units and also to break the virus chain spread from person to person or community spread.

As a case study, In Australia the [8] are training extensively to the medical care staff to provide necessary service through telemedicine and encouraging people to take the benefits to access health care services remotely to avoid the danger of exposure to COVID-19. In the same way, in UK the National Healthcare Services (NHS) is providing online consultation in the particular locations to prevent patient visit to regular healthcare providers. These steps will helps the peoples to keep away from the COVID-19. In Italy, the development of Information and communication technologies for health information and telemedicines has been started during 70's [9], for patients who suffer from severe respiratory sickness who requires long-term oxygen therapies there are telemonitoring services are available. Such patients were initially monitored at home for the period of 12 months; during this time a determination of arterial oxygen saturation and heart beat/pulse rate were recorded two times a week and the data will be automatically transferred to the hospital's processing unit via a normal telephone line. By the data obtained with this system is that the decrease in sharp exacerbations and hospital admissions during the tele monitoring stage [10]. The national plan for telemedicine in Italy includes innovative and strategic technology development for industrial exploitation. The eight tasks in the national plan are grouped into three areas: information management, health-care assistance and tools for the disabled [11-14]. The above examples will gives the clear picture how the telemedicine provides the service to the society, patients and physicians in a safe manner. This will demonstrate the telemedicine will simultaneously provide an effective cutting edge service to the community [15].

As a part of telemedicine are telemedicine Apps which are playing very crucial role in identifying and keeps track for infected sub-locations and areas apart from this app provides self-assessment capabilities. The app by Brazilian government is the 'Coronavírus SUS'. If the app-refers likely infection indications immediately the patients are referred to the nearest healthcare unit for testing, providing information and efficiency of the conventional healthcare setup. The Brazilian app also serves to provide the awareness about pandemic, vigilance of fake information and helping to reduce panic [16]. The similar initiation is also carried out the USA [17]. In the same way as others, in the UK, as a joint venture King's College London with Guy's and St Thomas' hospitals, have created and sophisticated app (C-19 COVID Symptom Tracker) [18] that acquire peoples one minute per day to self declaration about health ailment.

To promote the telemedicine is to have a thorough understanding of the present burning healthcare conditions in the country and also provide expert doctors advice from the center, without compromising the expertise, to enable successful prevention without person-to-person direct interaction. Further anticipatory actions to guard people and to combat against the COVID-19 were reported [19-20]. It is reported that the, quarantine or self isolation period has created loneliness and overwhelm vulnerable groups in the society, the problems such as anxiety, fear and depression in fewer cases have developed symptoms of post-traumatic stress disorder [21-22].

Telemedicine: challenges and opportunities

In the present lock-down situation, telemedicine is the best candidate for wider healthcare to fight against the COVID-19 pandemic [23]; however, there are a number of challenges to its successful commissioning. As a typical case in Brazil, the Federal Medical Council has been considered as telemedicine between patient and doctor is not legal [24]. In the same way the most of the States in the USA considers the same. Such barriers are in contradiction to recent actions taken by governments to halt the spread of COVID-19, which have focused on telemedicine implementation and usage. In the USA, for example, some federal rules have been waived to make it easier for physicians to provide care remotely, i.e. to adopt telemedicine [24-25].

Adequate bandwidth is required to support the transmission of data for e-healthcare, especially to transfer the images and sound. On the other hand broadband is required for telemedicine in e-healthcare. This is the major challenge for the people living in rural, hilly and tribal areas, [26-27]. Similarly, it is most necessary to educate the people to use the new technologies and software linked to the internet [28]. The maintenance of privacy and protection of a

patient's case history must be paramount and the issue is the nucleus confront by experts and doctors in the telemedicine field [29]. Lastly, there are several telemedicine opportunities emerging for e-healthcare, including wearable's, artificial intelligence, machine learning, 5G optimization and Big Data, which have the potential to benefit patients, medical staff and healthcare organizations [30-31]. Such technologies provide huge opportunity to help the impact of critical events, such as pandemics or natural calamities.

Telemedicine in India

India is the large 7th largest country by area in the world with a population of more than 131 crores [32] of people. Due to this, the fair distribution of healthcare services has proven to be a big challenge in public health management system. Adding to this is the recent trend of concentration of healthcare facilities to the cities and towns (including 75% of the population of doctors), away from rural India, where 68.84% of the national population live [33].

Because of the above reasons, telemedicine has emerged big way in terms of healthcare delivery and technology. The organization which played a major role in this is NASA and ISRO. The setting up of the National Telemedicine Taskforce by the Health Ministry of India, in 2005, paved way for the success of various projects like the ICMR-AROGYASREE, NeHA and VRCs. In India during 2001, ISRO (Indian Space Research Organization) initiated the concept of telemedicine with a telemedicine Pilot Project, it made an effort by linking Chennai's Apollo Hospital with the Apollo Rural Hospital at Aragonda village in the Chittoor district of Andhra Pradesh.[34] Initiatives taken by ISRO, the major government departments have taken active participation in this project and the departments are Department of Information Technology (DIT), Ministry of External Affairs, Ministry of Health and Family Welfare and the respective state governments actively involved in the development of telemedicine services in India.

Ministry of health, Government of India has made an attempt to combine the available health data and to made it as an easy access has taken up several projects namely Integrated Disease Surveillance Project (IDSP), National Cancer Network (ONCONET), National Rural Telemedicine Network, National Medical College Network and the Digital Medical Library Network.[35] Department of Information Technology of Government of India has made standard guidelines to practice telemedicine and commissioning the National Telemedicine Task Force by the Health Ministry, in 2005, were some of the other positive steps by the government. Other efforts have been made by External Affairs Ministry, International projects like the Pan-

African e-Network Project and the SAARC (South Asian Association for Regional Co-operation) Telemedicine Network Projects have successfully implemented as another initiative of the [36], strategically upgrading Indian telemedicine in the global scenario.

A few successful examples of the telemedicine practices in India include Sri Ganga Ram Hospital Delhi; mammography services, oncology at Regional cancer center, Trivandrum;[37] Sanjay Gandhi Postgraduate Institute of Medical Sciences providing surgical services, School of Telemedicine and Biomedical Informatics.[38] Telemedicine also finds its use in places where large populations occasionally/periodically gather at a point of time, telemedicine proved a best solution where stipulation of medical services becomes the need of the hour; the best example includes, during Maha Kumbhamelas, practice of telemedicine by Government of Uttar Pradesh.[39]

After this pandemic Indian government developed a "Aarogya Setu" App for the information and alert on COVID-19 and this is the government initiative to fight against COVID-19 [40]. This app helps citizens identify their risk of contracting the novel coronavirus, Aarogya Setu app is developed to keep track of user conversant in case he/she has crossed paths with someone who has proven corona positive. The tracking is done through a Bluetooth & location-generated social graph, which can show your interaction with anyone who has tested positive.

CONCLUSION

This article has focuses on the healthcare professionals and organizations are adopting telemedicine practices to 'flatten the of COVID-19 curve. We are not suggesting the technology of telemedicine alone will cure the health issues, and still there are challenges in the area which are discussed. However, incorporating telemedicine into healthcare practices during the COVID-19 pandemic situation is proving beneficial to the community, patients, medical professionals and government alike. Author suggests the policy-makers worldwide to take advantage of the telemedicine experiences reported during this outbreak to allow the practices of e-healthcare under laws of privacy and data protection. Author anticipates that this article may helps significant reflection on telemedicine and healing at a distance.

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